



GIET UNIVERSITY, GUNUPUR – 765022
M. Sc. (First Semester) Examinations, March – 2023
22PHPC103 – Computer Programming and Numerical Analysis
(Physics)

Time: 3 hrs

Maximum: 70 Marks

(The figures in the right hand margin indicate marks.)

PART – A**(2 x 10 = 20 Marks)**

Q.1. Answer all questions

	CO#	Blooms Level
a. A quadratic equation $x^4 - x - 8 = 0$ is defined with an initial guess of 1 and 2. Find the approximated value of x_2 using Regula-Falsi Method.	CO1	K1
b. What are the rules followed for rounding off?	CO1	K1
c. What is the use of main() .	CO1	K1
d. What is the difference between float and double in C?	CO1	K1
e. What is the binary equivalent of the decimal number 25.3751?	CO1	K1
f. How to define an UDF	CO1	K1
g. Write a formula for Newton –Raphson’s method.	CO2	K2
h. The irrational number $\sqrt{2}$ can be approximated by applying Newton’s method to the non linear equation $f(x) = x^2 - 2 = 0$. What is the Newton iteration formula?	CO3	K2
i. Write an algorithm for Simpson method.	CO1	K1
j. Construct the central difference table for the following data	CO4	K2
X 0 1 2 3		
Y 1 2 1 10		

PART – B**(10 x 5 = 50 Marks)**Answer ANY FIVE questions

	Marks	CO#	Blooms Level												
2. a. Find the Newton’s formula which takes following value also find $f(2.2)$	6	CO4	K2												
X 0 1 2 3															
Y 1 2 1 10															
b. Write down the difference between the followings with suitable example for each while vs. do..while.	4	CO1	K1												
3.a. Find the positive root of the equation $x^3 - 3x - 5 = 0$ by regular falsi method correct upto 4 decimal places.	7	CO3	K2												
b. Write an algorithm for simple interest.	3	CO1	K1												
4. a. Consider the set of points:	8	CO3	K2												
<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>X</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td> </tr> <tr> <td>Y</td><td>2</td><td>3</td><td>5</td><td>4</td><td>6</td> </tr> </table>	X	0	1	2	3	4	Y	2	3	5	4	6			
X	0	1	2	3	4										
Y	2	3	5	4	6										
Which of the following is the corresponding equation of the least squares line?															
b. What is an identifier?	2	CO1	K1												
5.a. Solve the differential equation $\frac{dy}{dx} = 2xy$, $y(1) = 2$, taking $h = 0.2$, Find $y(1.4)$	6														

	by using Runge –kutta method.			
b.	State the role of break statement in switch. Case control structure.	4	CO1	K1
6. a.	Solve the system of linear equation by Gauss elimination method.	5	CO3	K2
	$x_1 + x_2 + x_3 = 3, 4x_1 + 3x_2 + 4x_3 = 8$ and $9x_1 + 3x_2 + 4x_3 = 7$			
b.	Write a c program to check weather a given character is vowel or consonant.	5	CO1	K1
7.a.	Draw a flowchart for to find area of a circle.	2	CO1	K1
b.	Solve the system of linear equation by using Gauss-Sediel method	8	CO3	K1
	$83x + 11y - 4z = 95, 7x + 52y + 13z = 104$ and $3x + 8y + 29z = 71$			
8.	Write a program and algorithm to find prime numbers using Newton-Rahpson's method.	10	CO2	K2

--- End of Paper ---